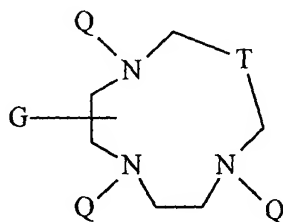


Abstract

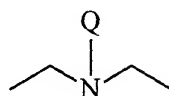
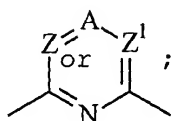
^{225}Ac complexes comprising a functionalized
polyazamacrocyclic chelant compound of the formula I
5 hereinbelow:



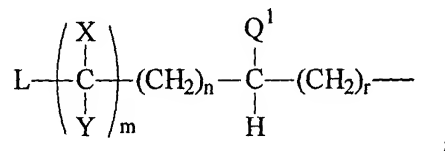
(I)

wherein:

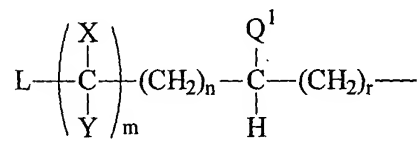
T is



G is independently hydrogen or



each Q is independently hydrogen, $(\text{CHR}^5)_p\text{CO}_2\text{R}$ or
15 $(\text{CHR}^5)_p\text{PO}_3\text{R}^6\text{R}^7$ or



Q^1 is hydrogen, $(\text{CHR}^5)_w\text{CO}_2\text{R}$ or $(\text{CHR}^5)_w\text{PO}_3\text{R}^6\text{R}^7$;

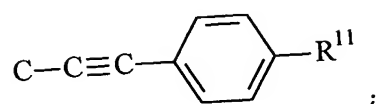
each R is independently hydrogen, benzyl or $\text{C}_1\text{-C}_4$ alkyl;

R^6 and R^7 are independently H, $\text{C}_1\text{-C}_6$ alkyl or $(\text{C}_1\text{-C}_2$
20 alkyl)phenyl;

each R^5 is independently hydrogen; $\text{C}_1\text{-C}_4$ alkyl or
 $(\text{C}_1\text{-C}_2$ alkyl)phenyl;

with the proviso that at least two of the sum of Q and
 Q^1 must be other than hydrogen;

A is CH, N, C-Br, C-Cl, C-SO₃H, C-OR⁸, C-OR⁹N⁺-R¹⁰X⁻, or



Z and Z¹ independently are CH, N, C-SO₃H, N⁺-R¹⁰X⁻, C-CH₂-OR⁸ or C-C(O)-R¹¹;

R⁸ is H, C₁-C₅ alkyl, benzyl, or benzyl substituted with at least one R¹²;

R⁹ is C₁-C₁₆ alkylamino;

R¹⁰ is C₁-C₁₆ alkyl, benzyl, or benzyl substituted with at least one R¹²;

R¹¹ is -O-(C₁-C₃ alkyl), OH or NHR¹³;

R¹² is H, NO₂, NH₂, isothiocyanato, semicarbazido, thiosemicarbazido, maleimido, bromoacetamido or carboxyl;

R¹³ is C₁-C₅ alkyl;

X and Y are each independently hydrogen or may be taken with an adjacent X and Y to form an additional carbon-carbon bond;

n is 0 or 1;

m is an integer from 0 to 10 inclusive;

p is 1 or 2;

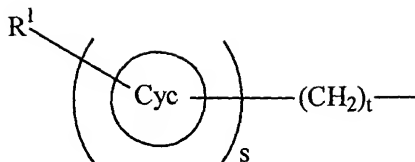
r is 0 or 1;

w is 0 or 1;

with the proviso that n is only 1 when X and/or Y form an additional carbon-carbon bond, and the sum of r and

w is 0 or 1;

L is a linker/spacer group covalently bonded to, and replaces one hydrogen atom of one of the carbon atoms to which it is joined, said linker/spacer group being represented by the formula



wherein:

s is an integer of 0 or 1;

t is an integer of 0 to 20 inclusive;

5 R^1 is H or an electrophilic or nucleophilic moiety which allows for covalent attachment to a biological carrier, or synthetic linker which can be attached to a biological carrier, or precursor thereof; and Cyc represents a cyclic aliphatic moiety, aromatic
10 moiety, aliphatic heterocyclic moiety, or aromatic heterocyclic moiety, each of said moieties optionally substituted with one or more groups which do not interfere with binding to a biological carrier; with the proviso that when R^1 is H, the linkage to the
15 biological carrier is through one of Q or Q^1 ; and with the proviso that when R^1 is other than H, at least one of Q and Q^1 must be $(CHR^5)_p PO_3 R^6 R^7$; and with further proviso that when Q is $(CHR^5)_p CO_2 R$, Q^1 is $(CHR^5)_w CO_2 R$, R is H, R^5 is H, and R^1 is H, then the sum of m, n, p, r,
20 s, t, and w is greater than 1;

or pharmaceutically acceptable salts thereof; complexed with ^{225}Ac .